

Proposed Item for Biobased Designation

The following biobased product information has been collected to support item designation by USDA for the BioPreferred Program. This summary reflects data available as of January 24, 2007.

Title: Industrial Cleaners

Description: Products used to remove contaminants, such as adhesives, inks, paint, dirt, soil, and grease, from parts, products, tools, machinery, equipment, vessels, floors, walls, and other production-related work areas. The cleaning products within this item are usually solvents, but may take other forms. They may be used in either straight solution or diluted with water in pressure washers, or in hand wiping applications in industrial or manufacturing settings, such as inside vessels. Task-specific cleaners used in industrial settings, such as parts wash solutions, are not included in this definition.

Manufacturers Identified: 59 manufacturers producing Industrial Cleaners have been identified through internet searches, manufacturer's directories, trade associations, and company submissions.

Industry Associations Investigated: The following industry associations have been investigated for member companies producing Industrial Cleaners:

- Biobased Manufacturers Association
- United Soybean Board
- Biomass Energy Research Association
- Power Washers of North
- International Window Cleaning Association
- WaterJet Technology Association
- American Solvents Council
- American Agricultural Economics Association
- American Soybean Association

Commercially Available Products Identified: Of the manufacturers identified, 122 Industrial Cleaners are commercially available on the market.

Product Information Collected: Specific product information including company contact, intended use, biobased content, and performance characteristics have been collected on 36 Industrial Cleaners.

Industry Performance Standards: Product information submitted by biobased manufacturers indicate that have typically been tested to the following industry standards:

- Green Seal #GS-37 Green Seal Environmental Standard for General-Purpose, Bathroom, Glass, and Carpet Cleaners Used for Industrial and Institutional Purposes
- Environmental Protection Agency National Contingency Plan
- American Society for Testing and Materials #D445-04e2 Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)
- American Society for Testing and Materials #D446-04 Standard Specifications and Operating Instructions for Glass Capillary Kinematic Viscometers

- American Society for Testing and Materials #D92-05a Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
- Boeing #BAC 5750 Solvent Cleaning
- Environmental Protection Agency Method #24 Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings
- Environmental Protection Agency SNAP Significant New Alternatives Policy: Section 612 of the Clean Air Act (CAA) requires EPA to establish a program to identify alternatives to Class I (CFCs, halons, carbon tetrachloride, methyl chloroform, methyl bromide, and HBFCs) and Class II (HCFCs) ozone-depleting substances and to publish lists of acceptable and unacceptable substitutes. Upon promulgation of the final rule, it is illegal to replace a Class I or Class II substance with any substitute which the Administrator determines may present adverse effects to human health or the environment where other substitutes have been identified that reduce overall risk and are currently or potentially available.
- American Society for Testing and Materials D600-90(2001) Standard Specification for Liquid Paint Driers
- American Society for Testing and Materials D13-02 Standard Specification for Spirits of Turpentine
- American Society for Testing and Materials D235-02 Standard Specification for Mineral Spirits (Petroleum Spirits) (Hydrocarbon Dry Cleaning Solvent)
- American Society for Testing and Materials D1364-02 Standard Test Method for Water in Volatile Solvents (Karl Fischer Reagent Titration Method)
- American Society for Testing and Materials D3278-96(2004)e1 Standard Specification for 2-Ethoxyethyl Acetate (99 % Grade)
- American Society for Testing and Materials D1836-02 Standard Specification for Commercial Hexanes

Samples Tested for Biobased Content: 32 samples of Industrial Cleaners have been submitted to independent laboratories for biobased content testing as specified by ASTM standard D6866-04.

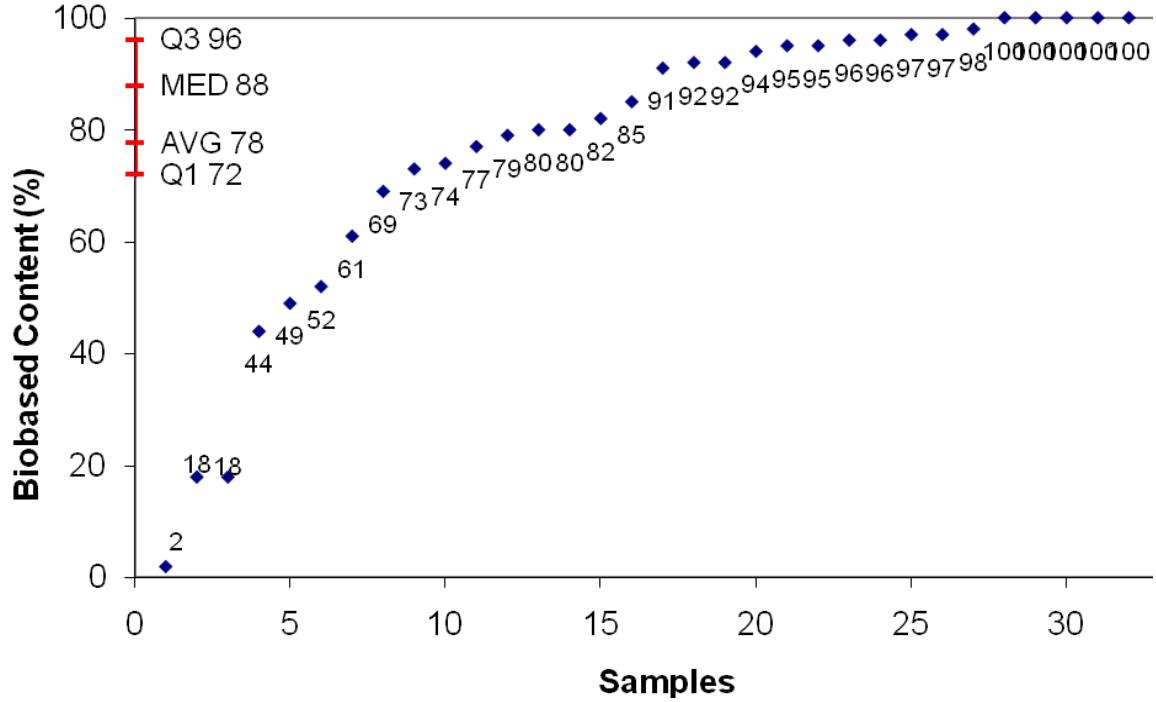
Biobased Content Data: Results from biobased content testing of Industrial Cleaners indicate a range of content percentages from 2% minimum to 100% maximum biobased content as defined by ASTM D 6866-04. A detailed distribution of biobased content levels is included as Appendix A.

Products Submitted for BEES Analysis: Life-cycle cost and environmental effect data for 3 Industrial Cleaners have been submitted to NIST for BEES analysis.

BEES Analysis: The life-cycle costs of the submitted Industrial Cleaners range from \$8.85 minimum to \$84.95 maximum per usage unit. The environmental scores range from 0.0152 minimum to 0.1641 maximum. A detailed summary of the BEES results is included as Appendix B.

Appendix A - Biobased Content Data

Industrial Cleaners



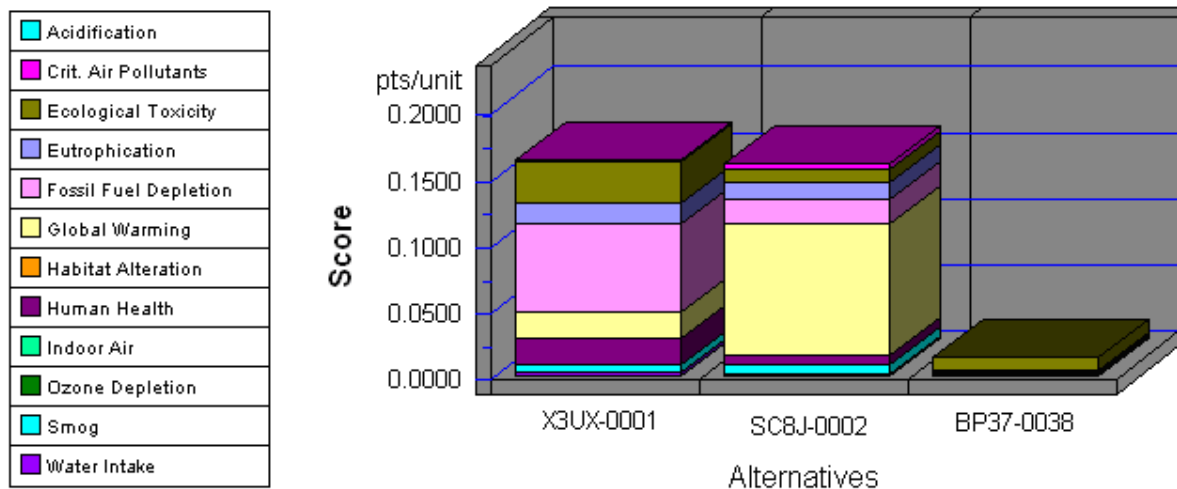
	Companies Identified	Products Identified	C14	BEES
1	X3UX	X3UX-0002	2	
2	MODM	MODM-0003	18	
3	RYB8	RYB8-0010	18	
4	TXH8	TXH8-0013	44	
5	BP37	BP37-0013	49	
6	K4U8	K4U8-0010	52	
7	L8O1	L8O1-0002	61	
8	SC8J	SC8J-0002	69	yes
9	U4WQ	U4WQ-0008	73	
10	DRL2	DRL2-0006	74	
11	RDO8	RDO8-0046	77	
12	TXH8	TXH8-0012	79	
13	U4WQ	U4WQ-0003	80	
14	MG2M	U4WQ-0003	80	
15	X3UX	X3UX-0001	82	yes
16	BP37	BP37-0038	85	yes
17	RDO8	RDO8-0057	91	
18	G944	G944-0016	92	
19	RGWJ	RGWJ-0093	92	
20	M7FY	M7FY-0002	94	
21	O9MM	O9MM-0012	95	
22	RYB8	RYB8-0004	95	

23	W916	W916-0004	96	
24	RDO8	RDO8-0062	96	
25	RDO8	RDO8-0045	97	
26	O9MM	O9MM-0011	97	
27	W916	W916-0005	98	
28	W64A	W64A-0004	100	
29	W64A	W64A-0009	100	
30	RYB8	RYB8-0003	100	
31	RYB8	RYB8-0006	100	
32	RYB8	RYB8-0008	100	

Appendix B - BEES Analysis Results

Units: 5 gallons of industrial cleaner

Environmental Performance

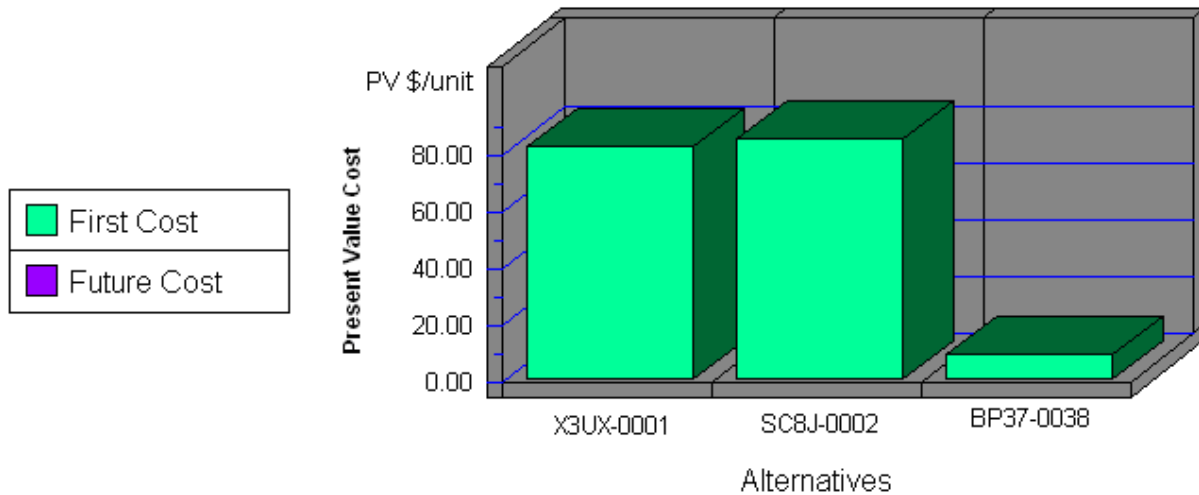


Note: Lower values are better

Category	X3UX-0001	SC8J-0002	BP37-0038
Acidification--5%	0.0000	0.0000	0.0000
Crit. Air Pollutants--6%	0.0011	0.0051	0.0000
Ecolog. Toxicity--11%	0.0316	0.0103	0.0107
Eutrophication--5%	0.0153	0.0118	0.0003
Fossil Fuel Depl.--5%	0.0665	0.0189	0.0024
Global Warming--16%	0.0204	0.0989	0.0006
Habitat Alteration--16%	0.0000	0.0000	0.0000
Human Health--11%	0.0202	0.0071	0.0003
Indoor Air--11%	0.0000	0.0000	0.0000
Ozone Depletion--5%	0.0000	0.0000	0.0000
Smog--6%	0.0055	0.0078	0.0006
Water Intake--3%	0.0035	0.0016	0.0003
Sum	0.1641	0.1615	0.0152

Appendix B (continued)

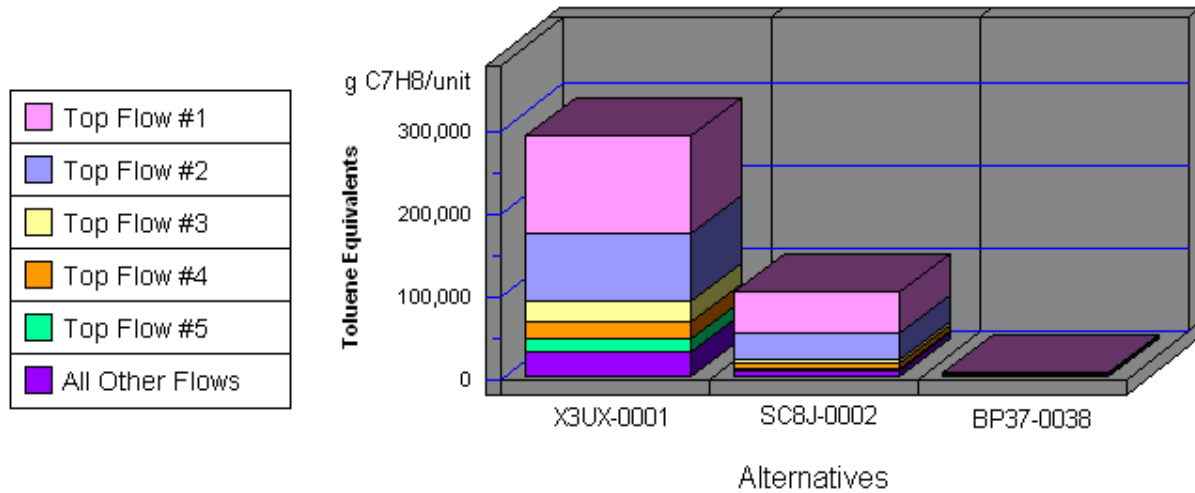
Economic Performance



*No significant/quantifiable durability differences were identified among competing alternatives. Therefore, future costs were not calculated.

Appendix B (continued)

Human Health by Sorted Flows*



Note: Lower values are better

Category	X3UX-0001	SC8J-0002	BP37-0038
Cancer--(w) Arsenic (As3+, As5+)	117,719.45	48,705.56	2,151.31
Cancer--(w) Phenol (C6H5OH)	81,783.60	31,911.64	1,551.48
Cancer--(a) Arsenic (As)	24,482.05	5,910.67	166.48
Cancer--(a) Dioxins (unspecifie	20,409.99	6,088.53	300.60
Noncancer--(a) Mercury (Hg)	15,827.74	1,964.03	9.82
All Others	30,735.66	7,994.64	761.75
Sum	290,958.49	102,575.06	4,941.43

*Sorted by five topmost flows for worst-scoring product

Appendix B (continued)

Industrial Cleaners				
Impacts	Units	X3UX-0001	SC8J-0002	BP37-0038
Acidification	millimoles H ⁺ equivalents	1.11E+04	3.40E+04	4.33E+02
Criteria Air Pollutants	microDALYs	3.56E+00	1.62E+01	1.34E-01
Ecological Toxicity	g 2,4-D equivalents	2.34E+02	7.65E+01	7.95E+01
Eutrophication	g N equivalents	5.87E+01	4.52E+01	9.71E-01
Fossil Fuel Depletion	MJ surplus energy	4.70E+02	1.33E+02	1.67E+01
Global Warming	g CO ₂ equivalents	3.26E+04	1.58E+05	9.53E+02
Habitat Alteration	T&E count	0.00E+00	0.00E+00	0.00E+00
Human Health	g C ₇ H ₈ equivalents	2.91E+05	1.03E+05	4.94E+03
Indoor Air Quality	g TVOCs	0.00E+00	0.00E+00	0.00E+00
Ozone Depletion	g CFC-11 equivalents	2.21E-04	5.19E-06	1.66E-08
Smog	g NO _x equivalents	1.39E+02	1.98E+02	1.55E+01
Water Intake	liters of water	6.23E+02	2.87E+02	4.87E+01
Functional Unit	-----	5 gallons		
1 Following are more complete descriptions of units: Acidification: millimoles of hydrogen ion equivalents; Criteria Air Pollutants: micro Disability-Adjusted Life Years; Ecological Toxicity: grams of 2,4-dichlorophenoxy-acetic acid equivalents; Eutrophication: grams of nitrogen equivalents; Fossil Fuel Depletion: megajoules of surplus energy; Global Warming: grams of carbon dioxide equivalents; Habitat Alteration: threatened and engangered species count; Human Health: grams of toluene equivalents; Indoor Air Quality: grams of Total Volatile Organic Compounds; Ozone Depletion: grams of chloroflourocarbon-11 equivalents; Smog: grams of nitrogen oxide equivalents; and Water Intake: liters of water.				